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COVER STORY

Torchbearers of Indian Bioscience R&D



India's Top 20 Promising Innovators IIII ▶

INTERVIEW



Dr Daniela Marino
Chief Executive Officer
CUTISS



▶ Startup Special: Leading the charge towards Health 5.0

▶ Expert Insights: Critical role of agri-focused NBFCs and Fintechs



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The Torchbearers of Indian bioscience

Profiling India's Top 20 Promising Bioscience Innovators

With their outstanding groundbreaking work in the field of biotech, healthtech and agritech, Indian bio-scientists and innovators are making a mark for themselves and the country. In this edition, we are profiling a few of the shining stars of Indian scientific fraternity.

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“We bio-engineer human skin in the laboratory”

CUTISS, a Swiss med tech start-up has developed the world’s first machine to produce human skin grafts and a CE marked medical device for the treatment of skin pigmentation disorders. In an exclusive interaction, Dr Daniela Marino, CEO and co-founder, CUTISS shares details on the company’s focus on addressing skin pigmentation disorders, current activities, India plans and much more

BY RAHUL KOUL

Tell us briefly about your company’s vision and journey so far? What does the name CUTISS signify?

Our focus is on skin, our physical barrier to protect us, and a key part of our identity. Our company name comes from the latin word cutis, meaning skin. We are a spin-off from the University of Zurich and the University Children’s Hospital in Zurich.

When our skin is damaged or affected by a disease, it has a huge impact not only on our physical health but also on our mental wellbeing. Think of a child who suffers severe burns in an accident, or a young adult who has

the autoimmune disorder Vitiligo.

Our vision is to provide patients with advanced skin cell and tissue therapy technology combining the scientific principles of biology, engineering, and deeptech:

DenovoSkin™ is a personalized, bio-engineered dermo-epidermal skin graft that can be transplanted on burn or reconstructive wounds, promising a superior quality of life after surgery to millions of patients. Given its characteristics, the manufacturing of denovoSkin can be automated.

Viticell® is a medical device that allows the repigmentation of discolored skin lesions using personalized cell therapy.

Your company has innovated the world’s first machine to produce human skin grafts and a CE marked medical device for the treatment of skin pigmentation disorders. Tell us more about the unique product features and cost?

Skin is the largest organ of our body. We bio-engineer human skin in the laboratory starting from a post-stamp sized sample from a patient’s healthy skin. This personalized process assures great results in terms of regeneration but it presents challenges in terms of scalability. So, we created the world’s first machine that can automate the production of denovoSkin™ with the vision to optimize and de-centralize manufacturing and to make it more accessible. The machine is now in the industrialization phase.

We are soon going to commercialize the medical device VitiCell® which treats skin pigmentation disorders, notably Vitiligo, the most common skin pigmentation disorder that affects approximately 1-2% of the global population. VitiCell® is a medical device that makes autologous cellular grafting possible in an out-patient setting by a medical professional, be it at a hospital, private clinic or a dermatologist’s cabinet.

How far is denovoSkin™, a personalized, dermo-epidermal skin graft, away from commercialization? Will it be available globally? What about affordability?

The denovoSkin™ is in late-stage clinical trials, and it is a medicinal product in the European Union and a biologic in the USA. It already

A leading European woman healthcare leader, Dr Daniela Marino is a bio scientist focused on regenerative skin medicine and tissue engineering. She holds a master in Biotechnology and a PhD in Sciences from ETHZ. During her PhD and her PostDoc, her research focussed primarily on vascular biology and skin engineering.

completed Phase 1 safety trials, and we recently announced the end of patient recruitment for Phase 2 efficacy trials in adult and adolescent burn patients. These Phase 2 results are expected in the first half of this year.

The denovoSkin™ is already accessible for compassionate patient use.

Our plan is to make the denovoSkin™ available to patients around the world. According to the World Health Organization (WHO), the highest incidence of burn injuries is in low- and middle-income countries, particularly in Southeast Asia and sub-Saharan Africa. Automation is therefore key to scaling up production and reducing costs, which is why we are also working on the bioengineering machine.

Why are you keen to focus on skin pigmentation disorders and skin grafts? What would be the market size for such products globally and in India?

We are developing a completely novel approach

to treat deep skin injuries with potentially life-saving and life-changing outcomes for patients. There are no comparable competitors to us.

The global market for the treatment of skin burns is growing. In recent years, climate change has resulted in many more wildfires and industrial incidents that have caused mass burn casualties, more domestic incidents due to the pandemic and lockdowns resulting in severe burns, and of course wars around the world that cause innumerable skin injuries requiring surgical interventions.

This is on top of the World Health Organization (WHO) estimate of around 11 million burn

“When our skin is damaged or affected by a disease, it has a huge impact not only on our physical health but also on our mental wellbeing”

distribution of the VitiCell® kit, as well as contact with dermatologists and skin specialists in the regions who will be the end users of this device.

We are also actively seeking support from investors and local healthcare authorities and

injuries requiring medical treatment worldwide each year.

Our focus on pigmentation is entirely complementary to skin bioengineering.

Tell us more about your plans to expand in India, Middle East and Africa?

We are seeking partners for the manufacturing and



“Our focus on pigmentation is entirely complementary to skin bioengineering”

bodies to accelerate the approval of denovoSkin™ for severe burns and reconstructive surgery.

We want to meet with potential investors, explore manufacturing and distribution partnership opportunities, and establish contacts with regional hospitals, clinics, and dermatology specialists.

Your views on India's fast growing biotech and medtech industries? How do you look at the business environment?

India's biotech and medtech industries are expected to continue to grow in the coming years, driven by factors such as an increasing focus on quality healthcare, a large pool of skilled workers, advancements in technology, and favorable government policies.

This is very exciting from our perspective as a

growing biotech and why we will be present at this year's World Start-up funding festival Convention in Delhi.

Where do you see your company in the next five years?

In the next five years our goal is to have the personalized skin graft denovoSkin™ available to patients and surgeons for the treatment of severe skin injuries, and to have machines available around the world to bioengineer the denovoSkin™. We will also continue our research and development in skin pigmentation, tissue engineering, and automation, driven by our subsidiary in France, CUTISS Innovation.

Looking further ahead, we know that our machine technology can represent a platform that can go beyond skin (into other tissues), as well as beyond medicine, for example, in agritech and fashiontech. ■

Health Tech

